



(TN3) Pipes passing through structures



Installation: Pipe laying

Pipes passing through structures (TN3)

Where a pipeline is built into any structure differential settlement will take place. This occurs at any manhole, inspection chamber, groundbeam or concrete surround and must be allowed for in detail design.

A risk of a pipe failure occurring at this point may be obviated by providing a flexible joint close to the face of the structure, allowing for the joint to be properly made and to move freely. A short length 'rocker' pipe should be laid next before any full length pipes are used, as illustrated in Figure 8 and 9.

The first joint should be within 150mm of the face of the structure.

The length of the rocker pipe should be no longer than 600mm for pipe diameters up to and including 300mm.

Where very large differential settlements may be anticipated, the number of short length pipes should be increased. Shallow gradients should be avoided in this situation, in order to minimise the possibility of backfalls occurring.

The effects of differential settlement may also be overcome by the provision of a relieving arch or lintel over the pipeline as it passes through a structure as shown in Figure 9 (b).

A gap of not less than 50mm must be left around the pipe and effectively sealed to prevent the entry of gas, bedding material or rodents. This is not an easy requirement to fulfil.

Flexible joints should be incorporated close to the structure, even where this procedure is adopted.

Where a pipeline is to pass close under a groundbeam, the groundbeam may be treated as a lintel. The pipeline should be isolated from the groundbeam by, for example, a slab of expanded polystyrene of at least 50mm thickness placed under the groundbeam as illustrated in Pipelines under buildings – Technical Note 5, page 104.

Alternatively, where ground conditions are suitable, the beam may be lowered to incorporate the pipeline as a built-in structure. In both cases, flexible joints should be provided close to both sides of the beam, with the appropriate associated rocker pipes.

Fig. 8 – Plan view of typical inspection chamber

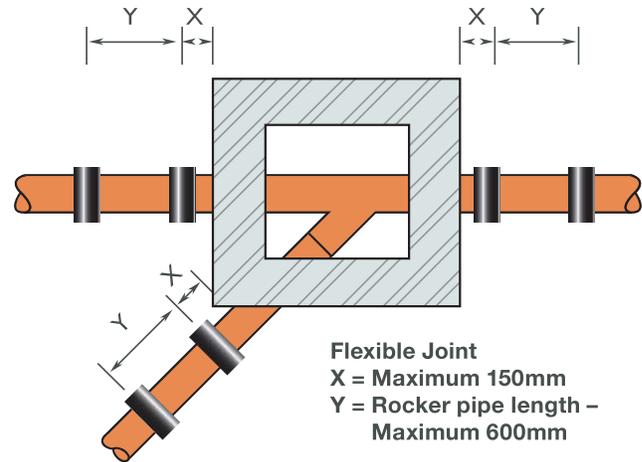
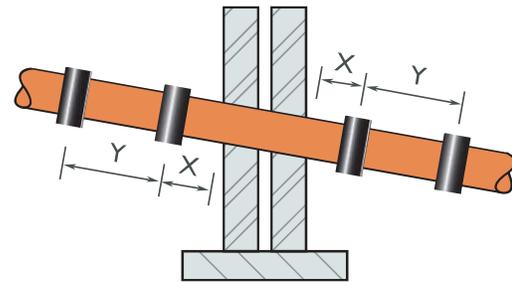
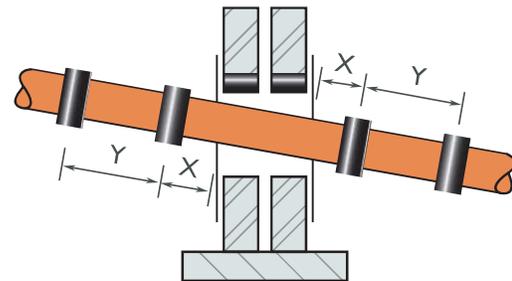


Fig. 9 – Diagrammatic sections showing pipes passing through walls



a. Pipe built-in to structure



b. Pipe through lintelled opening

Flexible Joint
X = Maximum 150mm
Y = Rocker pipe length – Maximum 600mm